

Claims as enclosed to IPRP

We claim:

- 5 1. A process for coating internals in a reactor, except for the coating of electrically
heatable, at least partly open-cell foams, with a catalytically active material or a
precursor thereof, in which an aerosol which contains the catalytically active
material or the precursor thereof as a disperse phase is provided and the aerosol is
10 established so that the disperse phase of the aerosol is deposited on the internals in
the reactor.
2. A process as claimed in claim 1, wherein the aerosol is passed through the reactor at
a velocity from 0.2 to 4, preferably from 0.2 to 2, m/s.
- 15 3. A process as claimed in claim 1 or 2, wherein the disperse phase of the aerosol has a
particle size of from 0.1 to 10 μm , preferably from 0.5 to 5 μm .
4. A process as claimed in any of claims 1 to 3, wherein the aerosol is produced by dry
20 comminution of a solid catalyst or of a precursor of a solid catalyst, in particular to a
particle size of from 0.1 to 10 μm , preferably from 0.2 to 5 μm , metering and
dispersing in an inert gas stream, in particular in a nitrogen stream.
5. A process as claimed in any of claims 1 to 4, wherein the aerosol is produced by
25 comminuting, by means of nozzles, a liquid which may have been heated or a liquid
mixture, or a solution, suspension or emulsion which may have been superheated.
6. A process as claimed in any of claims 1 to 5, wherein the internals are formed from
moldings which are movable relative to one another and are preferably present in the
30 form of a fixed bed, fluidized bed or moving bed.
7. A process as claimed in any of claims 1 to 5, wherein the internals are present in the
form of a consolidated, porous system, in particular in the form of woven fabric,
knitted fabric, braid or foam, except for electrically heatable foams.

8. A process as claimed in any of claims 1 to 5, which comprises internals having ordered flow channels, the internals being in particular stacked packings or monoliths.
- 5 9. A process as claimed in any of claims 1 to 5, wherein the internals are pipes, in particular ribbed pipes, through which a heating medium is passed.
10. A process as claimed in any of claims 1 to 9, wherein the disperse phase deposited on the internals in the reactor is subjected to further process steps, in particular is
10 fixed, activated and/or calcined.
11. A process as claimed in any of claims 1 to 10, wherein the coating is an initial coating.
- 15 12. A process as claimed in any of claims 1 to 10, wherein the coating comprises a reactivation of catalyst material on the surface of internals in a reactor.
13. The use of a process as claimed in any of claims 1 to 12 for coating internals in
20 reactors for carrying out heterogeneous gas-phase reactions, in particular oxidation or dehydrogenation reactions, preferably for the synthesis of maleic anhydride, phthalic anhydride, acrolein, (meth)acrylic acid or ethylene oxide.